

BRIEF NOTE

NOTES ON THE CRAYFISHES OF AUGLAIZE COUNTY,
OHIO, 1941-1943¹CLARENCE F. CLARK, 100 Verde Vista, Green Valley, AR
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Auglaize County is located in west central Ohio and includes the headwaters of the Wabash, St. Marys, Auglaize, Great Miami and Scioto Rivers. The fact that the forest cover decreased from 187,577 acres in 1857 (Twelfth Ann. Rept. Ohio Bd. Agr. for Year 1857) to 16,001 in 1940 (Gysel 1944) illustrates the change in total habitat which had taken place by the time these crayfish collections were made (see fig. 1).

Because of the almost total absence of county distribution records of crayfish in this section of Ohio, the following data are provided to assist in filling some of the gaps. Turner (1926) reported 2 species of crayfishes from the county, both taken in Lake St. Marys and the Auglaize River. Rhoades (1944) added 3 more and a subspecies now considered to be a form of one of the 3 reported; but he provided locality data for only one of them. The present paper adds 2 additional species to the county records and one for the Auglaize-Maumee River drainage.

The collections reported here were made by the senior author incidental to other field activities during the years 1941 through 1943. No systematic attempt was made specifically to collect all the species of the county or to determine their complete distribution. All identifications were made by R. Rhoades, who retained specimens for his collection, most of which has been deposited in the U. S. National Museum of Natural History.

Procambarus (Ortmannicus) acutus acutus (Girard). This crayfish is widely distributed throughout eastern United

States from Georgia and the Florida panhandle to Maine and Minnesota (Hobbs 1972). Turner (1926) reported it from Lake St. Marys and its outlet Beaver Creek, as Mercer County records. Rhoades (1944) added it to the Auglaize County fauna.

According to Turner (1926), it was found in rather large numbers at the west end of Lake St. Marys. Waters from the east end of the lake feed the St. Marys Fish Farm. It was rather scarce in the Fish Farm for only 2 or 3 specimens of this crayfish were found in each of the smaller one-third acre ponds when they were drained each fall. It was found to be rather widely distributed throughout the county in the sluggish, vegetated mud bottom pools in the St. Marys, Auglaize and Great Miami River drainages.

Orconectes rusticus (Girard). This species ranges from western Kentucky and Iowa through Illinois and northeastward into Ontario and across to Maine (Hobbs 1976). Rhoades (1952) described it as the common stream crayfish of western Ohio. Turner's (1926) map shows it was taken in the Auglaize and St. Marys River drainages and our records indicate it was found in all drainage basins of the county other than the Scioto. Its habitat preference seemed to be the warm, hard water streams with ample cover such as gravel, rubble or heavy detritus and vegetation such as water willow (*Dianthera americana* Linnaeus). In contrast to the typical habitat, *O. rusticus* was found in very large numbers in the deep soft bottom, weedy ponds at the St. Marys Fish Farm.

Orconectes immunis (Hagen). According to Crocker and Barr (1968), this is one of the most widespread species of

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crayfish found in the midwest. Its ability to burrow makes wet plains and swamp forests suitable habitat through which to extend its range. The swamp forest covering the country in early days greatly facilitated the distribution of this species into all the drainage systems of the country, other than the Scioto in which no crayfish were collected. Turner (1926) reported *O. immunis* from the St. Marys River in Auglaize County and Rhoades (1944) reported the population

northwestern extension of the Ohio distribution as given by Turner (1926) and Rhoades (1944), and represent a new species record for Auglaize County. The specimens taken in Wrestle and Virginia Creeks are the first collected from the Auglaize-Maumee Basin.

Cambarus (*Cambarus*) *ortmanni* Williamson). Williamson (1899) regarded this species as very local in the Wabash River drainage in Wells County, Indiana. Rhoades (1944) reported it from Clinton,

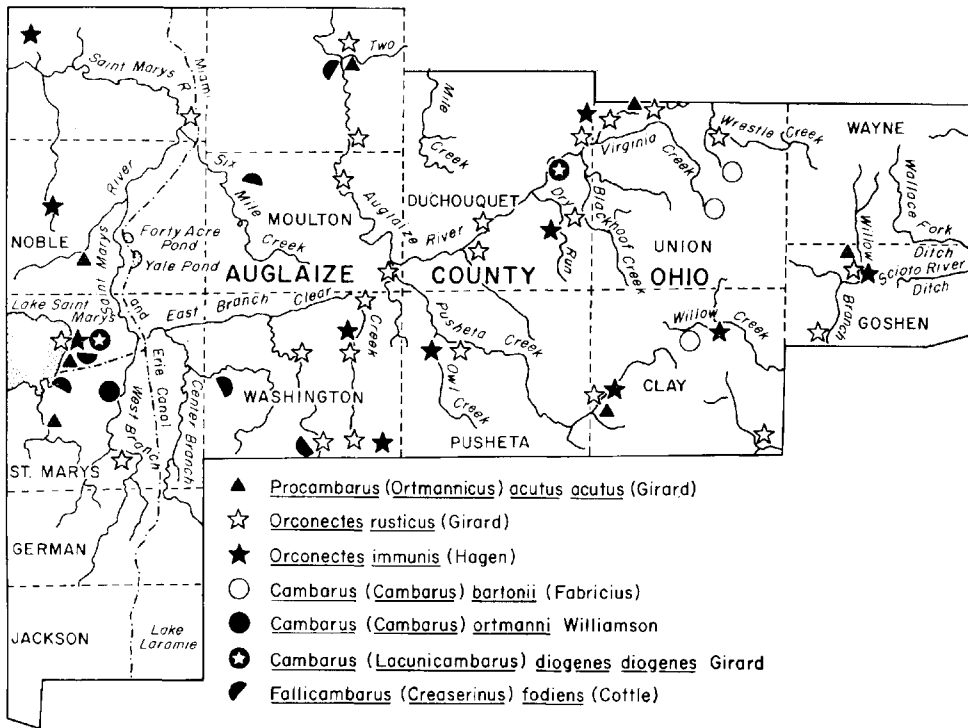


FIGURE 1. Distribution of crayfishes of Auglaize County, Ohio.

found in Forty Acre Pond as belonging to the form then known as *O. immunis spinirostris* (Faxon 1914).

Cambarus (*Cambarus*) *bartonii* (Fabricius). This widespread species is found from central South Carolina and northern Georgia, north to the south-western corner of Ohio, northeast to the St. Lawrence River and Maritime Provinces; but also extends westward north of the Great Lakes almost to Lake Superior (Crocker and Barr 1968). Our west central or northwestern Ohio collections are a

Hamilton, Warren and Preble Counties 60 to 80 miles to the south of Auglaize County; he did include a single Auglaize County record from a swampy area adjacent to the Miami-Erie Canal in St. Marys Township. This Auglaize County specimen extends the reported Ohio distribution nearly 100 miles northward and possibly 50 to 60 miles east from Williamson's collections. Its presence near the Miami-Erie Canal suggests the possibility that this water route was an avenue of disposal from the southern counties of

Ohio, and a habitat which should receive more consideration in studies of its distribution.

Cambarus (Lacunicambarus) diogenes diogenes (Girard). Crocker and Barr (1968) describe this crayfish as common and widespread across the United States east of the Mississippi River. Neither Turner (1926) or Rhoades (1944) reported this species from Auglaize County, although Rhoades (1944) included it from the adjacent counties of Mercer and Shelby and suggested that it probably occurred in every Ohio County. The specialized habitat in which *C. d. diogenes* (Girard) lives most of its life makes it adaptable to most localities, but prevents it from becoming well known. This probably accounts for only 2 collections being made in the county with 2 of the 3 specimens found in streams in April and May.

Fallicambarus (Creaserinus) fodiens (Cottle). Hobbs (personal communication) describes a wide distribution from lower Ontario south and westward to Arkansas and south and east to "... probably in the northwestern part of Alabama." Turner (1926) included this crayfish as *Cambarus argillicola* Faxon which he reported from Delaware County, about 60 miles east of Auglaize County, and in the Scioto River Basin and Rhoades (1944) reported on the senior author's collections from Mercer, Van Wert, Auglaize and Fulton Counties, thus extending its Ohio distribution. Three of the Auglaize County specimens were found in woodland areas, 2 in woodland pools and one from the St. Marys Fish Farm, adjacent to a swamp.

Seven of the 17 species of crayfish known to Ohio (Jezerinac 1975) were found in Auglaize County. *Cambarus (C.) bartonii* (Fabricius) and *Cambarus (L.) diogenes diogenes* are reported as new county records. Also, the collections of the former, from upper tributaries of the Auglaize River, are the first records for the species from the Auglaize-Maumee River Basin.

Procambarus (O.) acutus acutus (Girard), *Orconectes rusticus* (Girard) and *Orconectes immunis* (Hagen) were found in all major drainages of the county except the Scioto. *Cambarus (L.) diogenes*

diogenes (Girard) was collected only 3 times, twice in the Auglaize River and once at the St. Marys Fish Farm. These widely separated collections suggest its presence in the interlying area. It was taken only 3 times during 61 fisheries collections in the county during various seasons of the year, and may indicate a small population in the county. The one specimen of *Cambarus (C.) ortmanni* (Williamson), collected in a swamp along the old canal bed, suggests the possibility that additional specimens may be obtained from intensive collecting before such areas are drained. *Cambarus (C.) bartonni* (Fabricius) was obtained only from 2 cool, clear headwater streams of the Auglaize River and one from the Great Miami River drainage, in the moraines of the eastern part of the county. In contrast, *Fallicambarus (C.) fodiens* (Cottle) was taken only in the lower western part of the county.

The crayfish of Auglaize County have been subjected to heavy collecting pressure for many years. A 1970 study of the bait collection by Ohio anglers postulated the harvest of nearly 2,000,000 crayfish over and above those taken by bait dealers for sale (Wachtman, Wayt and Clark 1973). Since Auglaize County received some of the greatest minnow collecting pressure in the early 1930's, it seems plausible that continuous heavy collecting of crayfish for sale has affected the stream inhabiting species of crayfish.

Gysel (1944) indicated that Auglaize County was originally covered by swamp forests in which beech and maple were the dominant species, but that only 6.3% of that forest remained in 1940. He also stated that only a few stands remain that are similar to the original vegetation. *F. (C.) fodiens* (Cottle) may have been widespread throughout the county when the swamp forest was dominant; but reduction of habitat has restricted its distribution as well as that of *O. immunis* (Hagen), which could have used swamps for extending its range. The former will continue to be seriously affected by reduction of habitat, but the latter's preference for stream habitat will probably sustain it indefinitely.

C. (C.) bartonni (Fabricius) was subjected to the pressures of bait collection,

but it occurs in smaller streams that had small crayfish populations which normally did not attract collectors for the market. It also lives in headwater streams, which suggests that extension of stream length into the moraines will provide new and suitable habitat so long as stream flow is sufficient. Reversion of canal lands into private ownership has resulted in the drainage of most of the swamp areas along the route, thus eliminating the possibility of *C. (C.) ortmanni* Williamson to extend its distribution.

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LITERATURE CITED

- Crocker, Denton W. and David W. Barr 1968 Handbook of the crayfishes of Ontario. Royal Ontario Mus., Life Sci. Misc. Publ. p. 1-158.
- Faxon, Walter 1914 Notes on the crayfishes in the United States National Museum of Comparative Zoology with descriptions of new species and sub-species to which is appended a catalogue of the known species and sub-species. Mem. Mus. Comp. Zool. 40: 351-427.
- Gysel, Leslie W. 1944 The forest resources of Auglaize County, Ohio. Ohio J. Sci. 44: 103-122.
- Hobbs, Horton H., Jr. 1972 Crayfish (*Astacidae*) of North and Middle America. U.S. E.P.A., Office of Res. and Develop., Environ. Monitoring and Support Lab., Biol. Methods Br., Aquatic Biol. Sci., Water Poll. Res. Series 18050 ELD05/72: 1-173.
- Jezerinac, Raymond F. 1975 A taxonomic list of the crayfishes (*Decapoda: Astacidae*) of Ohio. Ohio State Univ., Dept. Zool., Newark Branch, Mimeo. p. 1-3.
- Rhoades, Rendell 1944 Further studies on distribution and taxonomy of Ohio crayfishes, and the description of a new subspecies. Ohio J. Sci. 44: 95-99.
- 1952 The crayfish of the headwaters of the Little Miami River and Massie Creek, Clark and Green Counties, Ohio. Ohio Dept. Nat. Resources, Div. Wildl., Invest. Rept., Fed. Aid Proj. F-1-R-1: 1-5.
- Report of the corresponding Secretary in the 12th Annual Report of the Ohio State Board of Agriculture, with an Abstract of the Proceedings of the County Agricultural Societies to the General Assembly of Ohio for the year 1857 (1858). Richard Nevins State Printer. p. 2-66.
- Wachtman, M., W. A. Wayt and C. F. Clark 1973 Going fishing—how about bait? Ohio Rept. 58: 74-75.
- Williamson, E. B. 1907 Notes on the crayfishes of Wells County, Indiana, with the description of a new species. 31st Ann. Rept. Dept. Geol. and Nat. Res. Ind (1906): 749-673.